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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,131	06/24/2003	Steve Doe	884A.0005.U1(US)	4021
29683	7590	08/10/2006	EXAMINER	
HARRINGTON & SMITH, LLP 4 RESEARCH DRIVE SHELTON, CT 06484-6212			CALEY, MICHAEL H	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,131

Applicant(s)

DOE, STEVE

Examiner

Michael H. Caley

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6-12,17,20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-12,17,20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: Translation, JP2002023156A.

DETAILED ACTION

Election/Restrictions

In response to amendments to the claims submitted on 5/4/06, the restriction requirement made on 4/6/2006 has been withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6-10, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumiyoshi et al. (JP 2002-23156 "Sumiyoshi") in view of Moon et al. (U.S. Patent No. 6,778,238 "Moon").

Regarding claim 1, Sumiyoshi discloses a display device having:

a liquid crystal layer (Figure 8C element 101);

a second electrode (Figure 7 element 26, bottom electrode)

a switchable optical layer (Figure 8C element 117), having in use either a transparent state or a non transparent state and being electrically switchable between the transparent state and the non-transparent state (abstract), wherein the non transparent state is a reflective state and the switchable optical layer is positioned above and connected to the second electrode (Figure 7 elements 26 and 17); and

a third electrode positioned between the liquid crystal layer and the switchable optical layer (Figure 7 element 26, top electrode).

Sumiyoshi fails to disclose a first electrode, which the liquid crystal layer is positioned under and connected to. Moon, however, teaches such a first electrode (Figure 4 element 112).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device disclosed by Sumiyoshi to have a first electrode positioned as proposed. One would have been motivated to provide a first electrode to allow for driving the liquid crystal in correspondence with the color filter regions (Column 7 lines 39-50).

Regarding claims 4 and 7, Sumiyoshi fails to disclose the first electrode as pixellated and transparent and as having associated pixel switches. Moon, however, teaches such a pixellated and transparent first electrode having associated pixel switches (Column 7 lines 39-43; Figure 4 element 112).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first electrode disclosed by Sumiyoshi to be pixellated and transparent with associated pixel switches. One would have been motivated to form the first electrode to be pixellated and transparent with associated pixel switches to allow for driving the liquid crystal in correspondence with the color filter regions (Column 7 lines 39-50). For example, the electrode must be pixellated to allow for control over individual display regions. The electrode must be transparent to allow for light to pass through to the viewer from the color filter regions.

Regarding claim 6, Sumiyoshi discloses the switchable optical layer as arranged to be switched as a whole (Figure 7; [0037]-[0039]).

Regarding claim 8, Sumiyoshi fails to disclose the pixel switches as positioned above the pixellated transparent electrode, such that each one of the pixel switches is connected to one of the plurality of distinct electrodes. Moon, however, teaches such a configuration of the to allow for driving of the liquid crystal in correspondence with the color filter regions while containing a reflective optical layer within the liquid crystal cell (Figure 4; Column 7 lines 7-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device disclosed by Sumiyoshi to have pixel switches above the pixellated transparent electrode, such that each one of the pixel switches is connected to one of the plurality of distinct electrodes. One would have been motivated to incorporate such a pixel switch and electrode configuration in the display device disclosed by Sumiyoshi to benefit from individual control to each of the pixel electrodes while allowing for the pixel switches to be placed within a same cell as a reflective optical layer (Figure 4; Column 7 lines 7-54).

Regarding claim 9, Sumiyoshi discloses the second and third electrodes as unitary electrodes (Figure 7 element 26; [0037]-[0039])

Regarding claim 10, Sumiyoshi discloses the unitary electrodes as transparent ([0037]).

Regarding claim 17, Sumiyoshi discloses the third electrode as transparent ([0037]).

Regarding claim 21, Sumiyoshi discloses a first mode of operation by uniformly maintaining the switchable optical layer in a transparent state and a second mode by uniformly maintaining the switchable optical layer in a reflective state (abstract; Figure 7; [0037]-[0039]). Sumiyoshi fails to explicitly disclose the step of selectively controlling portions of the liquid crystal layer in the first and second modes. Moon, however, teaches selective control of the liquid crystal layer (Column 7 lines 7-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to selectively control the liquid crystal layer in the first and second modes of operation. One would have been motivated to selectively control the liquid crystal layer to benefit from individual control of the light modulation properties of the liquid crystal regions corresponding to the color filters (Column 7 lines 7 – Column 8 line 54).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sumiyoshi in view of Moon and in further view of Nakamura et al. (U.S. Patent No 5,508,831 “Nakamura”).

Sumiyoshi fails to disclose the third electrode as shared by the liquid crystal layer and the switchable optical layer. Nakamura, however, teaches such a configuration in which the third electrode (element 24p) is shared by the liquid crystal layer and the switchable optical layer (Figure 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the third electrode to be shared by the liquid crystal layer and the switchable

Art Unit: 2871

optical layer. Sumiyoshi teaches the embodiment in which the liquid crystal layer and the switchable optical layer are immediately adjacent as advantageous to reduce parallax [0048]-[0049]). Nakamura shows the third electrode as shared between adjacent layers (Figure 11; Column 8 line 57 – Column 9 line 16). One would have been motivated to form the third electrode to be shared between the liquid crystal layer and the switchable optical layer to reduce parallax by enabling the first and second layers to be placed adjacent to one another.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sumiyoshi in view of Moon and in further view of Yamahara et al. (U.S. Patent No. 5,506,706 “Yamahara”).

Sumiyoshi as modified by Moon discloses a first polarizer (Figure 8 element 116a) positioned above the first electrode, a second polarizer (Figure 8 element 116b), positioned under the second electrode, and a backlight (Figure 8 element 103) positioned under the second polarizer. Sumiyoshi fails to disclose the second polarizer as crossed with the first polarizer. Yamahara, however, teaches crossing the first and second polarizers as advantageous to increase the display contrast, improve color reproduction, and improve viewing angle characteristics (Column 1 lines 45-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first and second polarizers to be crossed in the display device disclosed by Sumiyoshi. One would have been motivated to cross the first and second polarizers to benefit from an increase in the display contrast, improve color reproduction, and improve viewing angle characteristics (Column 1 lines 45-55).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sumiyoshi in view of Moon and in further view of Cornelissen et al. (U.S. Patent No. 6,437,900 “Cornelissen”).

Sumiyoshi discloses the voltage as varied across the switchable optical layer (abstract), but fails to disclose the control means to vary the voltage and to control the backlight. Cornelissen, however, teaches a control means for controlling a transflective layer analogous to the switchable optical layer and to control the backlight.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a control means to vary the voltage across the switchable optical layer and to control the backlight in the display device disclosed by Sumiyoshi. One would have been motivated to form such a control means to enable operation of the switchable optical layer and the backlight according to conventional means as taught by Cornelissen.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sumiyoshi in view of Moon and in further view of Beiswenger et al. (U.S. Patent No. 4,958,911 “Beiswenger”).

Sumiyoshi as modified by Moon fails to disclose the display device as used in a mobile device having a power supply. Beiswenger, however, teaches an analogous transflective display as used in a mobile device having a power supply (Column 1 lines 5-41, Column 7 lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device disclosed by Sumiyoshi to be used in a mobile device

Art Unit: 2871

having a power supply. One would have been motivated to incorporate a power source as a means of providing energy to run the light source and to provide voltage for driving the LCD circuitry. One would have been motivated to incorporate the display device disclosed by Sumiyoshi into a mobile device to benefit from the ability to illuminate the panel when ambient lighting is low (Column 1 lines 23-41).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,842,209 to Sumiyoshi et al. is related to JP 2002-023156 "Sumiyoshi"

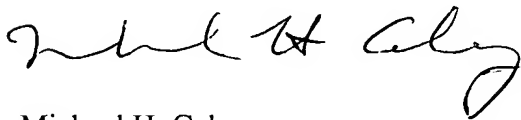
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Michael H. Caley". The signature is fluid and cursive, with a large loop at the end of the last name.

Michael H. Caley
August 7, 2006